

# Abstracts to articles referenced in *Current Concepts in Internal Medicine* – 8/17/11

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## 1. J Am Vet Med Assoc. 2011 Jul 1;239(1):81-9.

Evaluation of the sedative and cardiovascular effects of intramuscular administration of dexmedetomidine with and without concurrent atropine administration in dogs.

Congdon JM, Marquez M, Niyom S, Boscan P.

Source

Department of Clinical Sciences, College of Veterinary Medicine and Biological Sciences, Colorado State University, Fort Collins, CO 80523.

Abstract

**Objective-**To evaluate degree of sedation and cardiovascular, respiratory, acid-base excess, and electrolyte variables in response to IM administration of dexmedetomidine or dexmedetomidine with atropine. **Design-**Randomized crossover study. **Animals-**5 healthy 1- to 2-year-old sexually intact male Treeing Walker Coonhounds. **Procedures-**Dogs were instrumented with catheters placed in the dorsal pedal artery and lateral saphenous vein. All dogs received dexmedetomidine (10 µg/kg [4.5 µg/lb], IM) or dexmedetomidine with atropine (0.02 mg/kg [0.009 mg/lb], IM). **Variables** were measured at baseline (time 0) and 5, 15, 30, and 60 minutes after drug administration. **Results-**In all dogs, lithium dilution cardiac output decreased from a mean ± SD baseline value of 5.07 ± 1.0 L/min to 2.1 ± 0.9 L/min. Cardiac output was not different between dexmedetomidine group dogs and dexmedetomidine-atropine group dogs. Mean arterial pressure increased from baseline in both groups but was significantly higher in dexmedetomidine-atropine group dogs, compared with dexmedetomidine group dogs. Heart rate in dexmedetomidine group dogs decreased from 110 ± 14.2 beats/min to 49.4 ± 10.4 beats/min by 15 minutes. No differences were seen in blood gas values, electrolyte concentration, or hemoglobin values over time or between groups. Arrhythmias were detected in dexmedetomidine-atropine group dogs and included atrioventricular block, ventricular premature contractions, and ventricular bigeminy. **Conclusions and Clinical Relevance-**Administration of atropine at 0.02 mg/kg, IM, with dexmedetomidine at 10 µg/kg, IM, resulted in an increase in mean arterial blood pressure and heart rate; deleterious cardiac arrhythmias were also observed. Use of atropine with dexmedetomidine is not recommended in dogs.

PMID:

21718200

[PubMed - in process]

## 2. J Am Vet Med Assoc. 2011 Jun 15;238(12):1622-8.

Clinical factors associated with death before discharge and overall survival time in dogs with generalized megaesophagus.

McBrearty AR, Ramsey IK, Courcier EA, Mellor DJ, Bell R.

Source

Division of Companion Animal Sciences, School of Veterinary Medicine, College of Medical, Veterinary and Life Sciences, University of Glasgow, Glasgow, G61 1QH, Scotland.

Abstract

**Objective-**To investigate the association of 6 clinical features with outcome of dogs with generalized megaesophagus. **Design-**Retrospective cohort study. **Animals-**71 client-owned dogs with radiographic evidence of generalized esophageal dilation. **Procedures-**Medical records were reviewed for data on signalment, age at onset of clinical signs, body weight, evidence of undernutrition, and the administration of drugs to treat or prevent esophagitis. Radiographs were reviewed for evidence of aspiration pneumonia (AP) and to calculate the relative esophageal diameter. Details of outcome were collected from the medical records and by contacting owners and referring veterinarians. The association of 6 factors with death before discharge and overall survival time was assessed. **Results-**Overall median survival time was 90 days. Nineteen (26.7%) patients died before discharge from the hospital. Radiographic evidence of AP was both positively associated with death before discharge and negatively associated with overall survival time. An age at onset of clinical signs of >13 months was negatively associated with overall survival time. No evidence of an association of the degree of esophageal dilation or the use of drugs to prevent or treat esophagitis with death before discharge or overall survival time was found. **Conclusions and Clinical Relevance-**Radiographic evidence of AP and the age at onset of clinical signs were the only variables found to be significantly associated with survival time in this study, and this

should be considered when advising on prognosis in dogs with megaesophagus.

PMID:

21671818

[PubMed - in process]

3. J Am Vet Med Assoc. 2011 Jun 1;238(11):1441-51.

Evaluation of twice-daily lower-dose trilostane treatment administered orally in dogs with naturally occurring hyperadrenocorticism.

Feldman EC.

Source

Department of Medicine and Epidemiology, School of Veterinary Medicine, University of California-Davis, Davis, CA 95616.

Abstract

**Objective-**To evaluate effectiveness and incidence of adverse reactions to twice-daily lower-dose oral administration of trilostane in the treatment of dogs with naturally occurring hyperadrenocorticism (NOH). **Design-**Clinical trial. **Animals-**47 dogs with NOH. **Procedures-**47 dogs were treated orally with trilostane (0.21 to 1.1 mg/kg [0.1 to 0.5 mg/lb], q 12 h). All dogs were reevaluated at 2 weeks and 2 months, 38 dogs at 6 months, and 28 dogs at 1 year of treatment. **Results-**9 of 47 dogs had an adrenocortical tumor causing NOH, and all had good responses after 2 months (mean trilostane dosage, 0.89 mg/kg [0.40 mg/lb], q 12 h). All successfully underwent surgical adrenal tumor extirpation. Thirty-eight dogs had pituitary-dependent hyperadrenocorticism (PDH); 15 dogs did not require a dose increase during the study, and at each of 4 reevaluations, 10 of 15, 13 of 15, 14 of 15, and 11 of 11 had a good response. Twenty-three dogs with PDH had their dose or frequency of trilostane administration increased during the study. Mean trilostane dosage at 1-year reevaluation in dogs with a good response was 1.7 mg/kg (0.8 mg/lb), twice daily, or 1.1 mg/kg, 3 times daily. At each of 4 reevaluations, 17 of 23, 14 of 23, 17 of 23, and 13 of 17 dogs with PDH had a good response. Five dogs became ill because of trilostane-induced adverse effects, but only 1 required hospitalization. **Conclusions and Clinical Relevance-**Administration of initial lower doses of trilostane to dogs with NOH is effective.

PMID:

21627507

[PubMed - in process]

4. J Am Vet Med Assoc. 2011 Jun 1;238(11):1452-8.

Diagnostic accuracy of using erythrocyte indices and polychromasia to identify regenerative anemia in dogs.

Hodges J, Christopher MM.

Source

Veterinary Medical Teaching Hospital, School of Veterinary Medicine, University of California-Davis, Davis, CA 95616.

Abstract

**Objective-**To determine diagnostic accuracy of using erythrocyte indices and polychromasia to identify regenerative anemia in dogs. **Design-**Retrospective and prospective cross-sectional study. **Animals-**4,521 anemic dogs. **Procedures-**CBC results obtained between July 2002 and July 2008 by use of an automated laser-based flow cytometric hematology analyzer from dogs with Hct values  $\leq 35\%$  were retrieved. Sensitivity, specificity, accuracy, and predictive values of using erythrocyte indices and polychromasia to identify regeneration were determined, with a reticulocyte count  $> 65,000$  reticulocytes/ $\mu\text{L}$  considered the gold standard. Similarly, 134 blood samples from anemic dogs were analyzed prospectively with an in-house electrical impedance analyzer. **Results-**Of 4,387 dogs with samples analyzed retrospectively, 1,426 (32.5%) had regenerative anemia. Of these, 168 (11.8%) had macrocytic hypochromic anemia. High mean cell volume and low mean cell hemoglobin concentration had low sensitivity (11%), high specificity (98%), and moderate accuracy (70%) when used to identify regenerative anemia. Use of polychromasia alone had an accuracy of 77%, and use of polychromasia combined with a high RBC distribution width (RDW) had an accuracy of 79%. Results obtained with the in-house analyzer were similar. **Conclusions and Clinical Relevance-**Results suggested that most regenerative anemias in dogs were not macrocytic hypochromic. Polychromasia, with or without high RDW, was a more accurate indicator than other erythrocyte indices of regenerative anemia. To avoid a false diagnosis of nonregenerative anemia, a blood smear should be evaluated in anemic dogs when a reticulocyte count is not available.

PMID:

21627508

[PubMed - in process]

5. J Am Vet Med Assoc. 2011 Apr 15;238(8):1011-6.

Association of hypertriglyceridemia with insulin resistance in healthy Miniature Schnauzers.

Xenoulis PG, Levinski MD, Suchodolski JS, Steiner JM.

Source

Gastrointestinal Laboratory, Department of Small Animal Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Texas A&M University, College Station, TX 77843, USA. pxenoulis@gmail.com

Abstract

**OBJECTIVE:**

To determine whether hypertriglyceridemia in Miniature Schnauzers is associated with insulin resistance.

**DESIGN:**

Case-control study.

**ANIMALS:**

28 Miniature Schnauzers with hypertriglyceridemia and 31 Miniature Schnauzers for which serum triglyceride concentrations were within the reference range (control dogs).

**PROCEDURES:**

All dogs had no history of chronic disease, were free of clinical signs for at least 3 months prior to blood collection, and were not receiving any medications known to affect lipid metabolism or serum insulin concentration. Food was withheld from each dog for  $\geq 12$  hours; a 5- to 10-mL blood sample was collected and allowed to clot to obtain serum. Serum insulin and glucose concentrations were measured, and the homeostasis model assessment (HOMA) score was calculated (ie, [basal serum insulin concentration {mU/L}  $\times$  basal serum glucose concentration {mmol/L}]/22.5).

**RESULTS:**

Median serum insulin concentration was significantly higher in hypertriglyceridemic Miniature Schnauzers (21.3 mU/L) than it was in control dogs (12.5 mU/L). The percentage of dogs with high serum insulin concentrations was significantly greater in the hypertriglyceridemic group (28.6%) than it was in the control group (6.5%; odds ratio, 5.8; 95% confidence interval, 1.1 to 30.2). Median HOMA score for hypertriglyceridemic Miniature Schnauzers (4.9) was significantly higher than that for control dogs (2.8).

**CONCLUSIONS AND CLINICAL RELEVANCE:**

Results indicated that hypertriglyceridemia in Miniature Schnauzers is often associated with insulin resistance. Further studies are needed to determine the prevalence and clinical importance of insulin resistance in hypertriglyceridemic Miniature Schnauzers.

**PMID:**

21492044

[PubMed - indexed for MEDLINE]

6. J Vet Intern Med. 2011 Jan-Feb;25(1):20-5. doi: 10.1111/j.1939-1676.2010.0644.x. Epub 2010 Dec 8.

Serum triglyceride concentrations in Miniature Schnauzers with and without a history of probable pancreatitis.

Xenoulis PG, Levinski MD, Suchodolski JS, Steiner JM.

Source

Gastrointestinal Laboratory, Department of Small Animal Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Texas A&M University, College Station, TX 77843, USA. pxenoulis@cvm.tamu.edu

Abstract

**BACKGROUND:**

The association between hypertriglyceridemia and pancreatitis remains obscure in dogs. A possible role of hypertriglyceridemia as a cause of pancreatitis in Miniature Schnauzers has been suspected.

**HYPOTHESIS/OBJECTIVES:**

To compare serum triglyceride concentrations between Miniature Schnauzers with and without a recent history of pancreatitis.

**ANIMALS:**

Seventeen Miniature Schnauzers with a history of pancreatitis (group 1) and 34 age-matched Miniature Schnauzers without a history of pancreatitis (group 2) were prospectively enrolled.

**METHODS:**

Prospective case-control study. Two samples were collected from each of the 17 Miniature Schnauzers with pancreatitis: 1 during pancreatitis and 1 after clinical and biochemical resolution of pancreatitis. Serum triglyceride and cholesterol concentrations were compared between group 1 (after resolution of pancreatitis) and group 2.

**RESULTS:**

Miniature Schnauzers in group 1 were significantly more likely to have hypertriglyceridemia (>108 mg/dL) (71%) after resolution of pancreatitis than Miniature Schnauzers in group 2 (33%; odds ratio = 5.02; 95% confidence interval = 1.4-17.8; P = .0163). Serum triglyceride concentrations were significantly higher in dogs of group 1 (median: 605.0 mg/dL) after resolution of pancreatitis than in dogs of group 2 (median: 73.5 mg/dL; P = .002).

**CONCLUSIONS AND CLINICAL IMPORTANCE:**

Miniature Schnauzers with a history of pancreatitis were 5 times more likely to have hypertriglyceridemia than controls. Hypertriglyceridemia might be associated with the development of pancreatitis in some dogs of this breed. Additional studies are needed to further clarify the role of hypertriglyceridemia in the development of pancreatitis in Miniature Schnauzers as well as other dog breeds.

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PMID:

21143300

[PubMed - indexed for MEDLINE]

7. J Vet Intern Med. 2011 Mar-Apr;25(2):251-60. doi: 10.1111/j.1939-1676.2011.0696.x. Epub 2011 Feb 25.

A comparison of factors that influence survival in dogs with adrenal-dependent hyperadrenocorticism treated with mitotane or trilostane.

Helm JR, McLauchlan G, Boden LA, Frowde PE, Collings AJ, Tebb AJ, Elwood CM, Herrtage ME, Parkin TD, Ramsey IK.

Source

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Abstract

**BACKGROUND:**

Trilostane is a recognized treatment for canine pituitary-dependent hyperadrenocorticism (PDH); however, its efficacy in dogs with adrenal-dependent hyperadrenocorticism (ADH) is unknown.

**OBJECTIVES:**

To examine factors that might influence survival in the medical management of ADH, with particular emphasis on treatment selection.

**ANIMALS:**

Thirty-seven animals referred to 4 centers over a period of 12 years that had been diagnosed with ADH and treated with either trilostane (22/37), mitotane (13/37), or both (2/37).

**METHODS:**

Retrospective analysis of clinical records.

**RESULTS:**

There was no statistically significant difference between the survival times of 13 dogs treated only with mitotane when compared with 22 dogs treated only with trilostane. The median survival time for animals treated with trilostane was 353 days (95% confidence interval [CI] 95-528 days), whereas it was 102 days (95% CI 43-277 days) for mitotane. Metastatic disease was detected in 8 of 37 dogs. There was a significantly lower probability of survival for dogs with metastatic disease when compared with those without metastatic disease (P < .001).

**CONCLUSIONS AND CLINICAL IMPORTANCE:**

The choice of medical treatment for ADH may not have a major effect on survival times. However, the presence of metastatic disease considerably decreases survival time regardless of the choice of medical treatment.

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PMID:

21352377

[PubMed - indexed for MEDLINE]

8. Res Vet Sci. 2011 Jul 30. [Epub ahead of print]

Low dose of insulin detemir controls glycaemia, insulinemia and prevents diabetes mellitus progression in the dog with pituitary-dependent hyperadrenocorticism.

Miceli DD, Gallelli MF, Cabrera Blatter MF, Martiarena B, Brañas MM, Ortemberg LR, Gómez NV, Castillo VA.

Source

Cátedra Clínica Médica de Pequeños Animales-Hospital Escuela Medicina Veterinaria, Unidad de Endocrinología, Facultad de Ciencias Veterinarias, Universidad de Buenos Aires, 1427, Av. Chorroarín 280, Argentina.

Abstract

Diabetes is often associated with pituitary-dependent hyperadrenocorticism (PDH). Hypercortisolism causes insulin

resistance and affects  $\beta$ -cell function. The purpose of this study was to test if daily administration of a long-acting insulin analogue during the first month of anti-PDH treatment can prevent progress to diabetes in these animals. Twenty-six PDH dogs were divided into three groups: one group with glycaemia  $<5.83\text{mmol/L}$  and two groups with glycaemia  $>5.83\text{mmol/L}$  and  $<9.35\text{mmol/L}$ , one of which received insulin detemir during 4 months. Dogs with glycaemia  $<5.83\text{mmol/L}$  and those with glycaemia  $>5.83\text{mmol/L}$  which received insulin did not develop diabetes. In the non-insulin group, 6/7 dogs developed diabetes after the third month. There is a 13-fold higher risk of diabetes in dogs with glycaemia  $>5.83\text{mmol/L}$  and no insulin treatment. Administering insulin detemir to dogs with PDH and glycaemia  $>5.83\text{mmol/L}$  could prevent progression to diabetes.

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PMID:

21807392

[PubMed - as supplied by publisher]

9. J Vet Intern Med. 2010 Jul-Aug;24(4):819-24. Epub 2010 May 11.

Antimicrobial resistance impacts clinical outcome of granulomatous colitis in boxer dogs.

Craven M, Dogan B, Schukken A, Volkman M, Chandler A, McDonough PL, Simpson KW.

Source

College of Veterinary Medicine, VMC 2001, Cornell University, Ithaca, NY 14853-9655, USA.

Abstract

**BACKGROUND:**

*Escherichia coli* have recently been identified within the colonic mucosa of Boxer dogs with granulomatous colitis (GC). Eradication of invasive *E. coli* is associated with clinical and histological remission.

**OBJECTIVES:**

To determine antimicrobial susceptibility profiles of *E. coli* strains from GC and healthy dogs, and the association of antimicrobial resistance with clinical outcome.

**ANIMALS:**

Fourteen Boxer dogs with GC and 17 healthy pet dogs.

**METHODS:**

Prospective study: *E. coli* was cultured from GC biopsies and rectal mucosal swabs of healthy dogs. Individual strains were selected by phylogroup and overall genotype, determined by triplex- and random amplified polymorphic DNA-polymerase chain reaction respectively. Antimicrobial susceptibility was determined by broth microdilution minimal inhibitory concentration.

**RESULTS:**

Culture yielded 23 *E. coli* strains from GC (1-3/dog, median 2) and 34 strains from healthy (1-3/dog, median 2). *E. coli* phylogroups were similar ( $P=.18$ ) in GC (5A, 7B1, 5B2, 6D) and healthy (2A, 10B1, 15B2, 7D). Resistance to ampicillin, amoxicillin-clavulanate, cefoxitin, tetracycline, trimethoprim-sulfa (TMS), ciprofloxacin, and chloramphenicol was greater ( $P<.05$ ) in GC (21-64%) than healthy (0-24%). Enrofloxacin resistant *E. coli* were isolated from 6/14 GC versus 0/17 healthy ( $P=.004$ ). Of the enrofloxacin resistant cases, 4/6 were also resistant to macrophage-penetrating antimicrobials such as chloramphenicol, rifampicin, and TMS. Enrofloxacin treatment before definitive diagnosis was associated with antimicrobial resistance ( $P<.01$ ) and poor clinical outcome ( $P<.01$ ).

**CONCLUSIONS AND CLINICAL IMPORTANCE:**

Antimicrobial resistance is common among GC-associated *E. coli* and impacts clinical response. Antimicrobial therapy should be guided by mucosal culture and antimicrobial susceptibility testing rather than empirical wisdom.

PMID:

20492483

[PubMed - indexed for MEDLINE]

10. J Vet Intern Med. 2011 Jan-Feb;25(1):47-54. doi: 10.1111/j.1939-1676.2010.0651.x. Epub 2010 Dec 8.

Efficacy of oral famotidine and 2 omeprazole formulations for the control of intragastric pH in dogs.

Tolbert K, Bissett S, King A, Davidson G, Papich M, Peters E, Degernes L.

Source

Department of Clinical Sciences, College of Veterinary Medicine, North Carolina State University, Raleigh, NC 27606, USA.

Abstract

**BACKGROUND:**

Little is known about the efficacy of commonly used acid suppressants on intragastric pH in dogs.

**OBJECTIVE:**

To compare the effect of oral famotidine, 2 formulations of omeprazole, and placebo on intragastric pH in dogs with a catheter-free, continuous pH monitoring system.

**ANIMALS:**

Six healthy adult mixed-breed colony dogs.

**METHODS:**

Utilizing a randomized, 4-way cross over, open-label study, dogs were administered famotidine PO (1.0-1.3 mg/kg q12h), omeprazole tablet (1.5-2.6 mg/kg q24h), omeprazole reformulated paste (RP) (Gastrogard, 1.5-2.6 mg/kg q24h), and placebo for 7 days followed by a 10-day washout period. Radiotelemetric pH capsules were placed with gastroscopy assistance to continuously record intragastric pH for 4 days (days 4-7 of dosing). The percentage of time that intragastric pH was  $\geq 3$  and  $\geq 4$  was compared among treatment groups using repeated measures of analysis of variance. Tukey's Studentized range test was used to determine which groups were different with  $\alpha = 0.05$ .

**RESULTS:**

Mean  $\pm$  SD percent time intragastric pH was  $\geq 3$  and  $\geq 4$  was  $22 \pm 8\%$  and  $14 \pm 6\%$  for famotidine,  $63 \pm 14\%$  and  $52 \pm 17\%$  for omeprazole tablet,  $54 \pm 17\%$  and  $44 \pm 18\%$  for omeprazole RP, and  $6 \pm 6\%$  and  $5 \pm 5\%$  for placebo. Both omeprazole formulations significantly increased intragastric pH compared with famotidine and placebo, but omeprazole tablet and RP was not significantly different from each other.

**CONCLUSION:**

Oral omeprazole tablet and RP provide superior gastric acid suppression to famotidine, and should therefore be considered more effective for the treatment of acid related disorders in dogs.

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**PMID:**

21143305

[PubMed - indexed for MEDLINE]

11. J Vet Intern Med. 2011 Jan-Feb;25(1):61-4. doi: 10.1111/j.1939-1676.2010.0657.x. Epub 2010 Dec 13.

Ivermectin and milbemycin oxime in experimental adult heartworm (*Dirofilaria immitis*) infection of dogs.

Snyder DE, Wiseman S, Cruthers LR, Slone RL.

**Source**

Elanco Animal Health Research and Development, a Division of Eli Lilly and Company, Greenfield, IN 46140, USA.  
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**Abstract****BACKGROUND:**

The US Food and Drug Administration reports an increase in the frequency of reports of lack of effectiveness claims for heartworm (HW) prevention products.

**HYPOTHESIS:**

At their labeled doses, single doses of commercially available HW prevention products are not completely effective against all field isolates of HW.

**ANIMALS:**

Forty-two HW-free dogs experimentally inoculated with a recent HW field isolate.

**METHODS:**

Placebo-controlled, blinded laboratory clinical trial. Dogs randomly allocated to 1 of 3 treatment groups with 14 dogs per group. Groups were untreated control or p.o. dosed with milbemycin oxime (MBO) or ivermectin (IVM). Dogs were inoculated with 50 HW third stage larvae 30 days before dosing and necropsy was performed on Day 123 after treatment to enumerate adult HW.

**RESULTS:**

Thirteen of 14 control dogs had adult HW detected at necropsy with a geometric mean worm count of 22.3. One HW was found in 1 dog in each of the MBO and IVM treatment groups.

**CONCLUSIONS AND CLINICAL IMPORTANCE:**

Two currently approved macrocyclic lactone HW preventives used at their labeled dose rates were  $<100\%$  effective against a recent HW field isolate, supporting the hypothesis that the effectiveness of a single dose of these preventives can vary. This is important in guiding clients on expectations of product effectiveness.

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**PMID:**

21155893

[PubMed - indexed for MEDLINE]

12. J Vet Intern Med. 2011 Jan-Feb;25(1):71-5. doi: 10.1111/j.1939-1676.2010.0656.x. Epub 2010 Dec 13.

A prospective study of clopidogrel therapy in dogs with primary immune-mediated hemolytic anemia.

Mellett AM, Nakamura RK, Bianco D.

Source

Internal Medicine Department, Red Bank Veterinary Hospital, NJ, USA.

Abstract

**BACKGROUND:**

A major cause of death in dogs with primary immune-mediated hemolytic anemia (pIMHA) is thrombotic disease. Ultralow-dose aspirin (ULDA) is commonly used to prevent thrombosis in dogs with pIMHA; however, the efficacy of antiplatelet agents in dogs with pIMHA is unknown.

**HYPOTHESIS:**

The use of clopidogrel (CL), alone or in combination with ULDA, would improve survival to discharge and at 90 days without important adverse effects compared with ULDA alone in dogs with pIMHA treated with standard immunosuppressive therapy.

**ANIMALS:**

Twenty-four client-owned dogs with pIMHA.

**METHODS:**

Prospective, positive-controlled, unmasked clinical trial with dogs randomized in 3 treatment groups to receive PO ULDA or CL or both.

**RESULTS:**

There was no identifiable adverse reaction, evidence of hemorrhage, or increase in transfusion requirements associated with CL therapy, either alone or combined with ULDA, compared with ULDA alone. There was no significant difference between treatment groups with respect to survival to discharge and at 90 days.

**CONCLUSIONS AND CLINICAL IMPORTANCE:**

This study suggests that CL therapy, alone or in combination with ULDA, was safe and had similar short-term survival compared with ULDA alone in a small group of dogs with pIMHA able to tolerate oral medications and treated with standard immunosuppressive treatment.

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PMID:

21155892

[PubMed - indexed for MEDLINE]

13. J Am Vet Med Assoc. 2005 Jun 1;226(11):1869-80.

Evaluation of prognostic factors, survival rates, and treatment protocols for immune-mediated hemolytic anemia in dogs: 151 cases (1993-2002).

Weinkle TK, Center SA, Randolph JF, Warner KL, Barr SC, Erb HN.

Source

Department of Clinical Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY 14853, USA.

Abstract

**OBJECTIVE:**

To evaluate prognostic factors, survival, and treatment protocols for immune-mediated hemolytic anemia (IMHA) in dogs.

**DESIGN:**

Retrospective study.

**ANIMALS:**

151 dogs with IMHA not associated with underlying infectious or neoplastic disease.

**PROCEDURE:**

Information recorded from review of medical records included signalment at the time of initial evaluation; vaccination history; 30-, 60-, and 365-day follow-up outcomes; laboratory data; results of imaging studies; and necropsy findings. Dogs were grouped according to the presence of spherocytes, autoagglutination, a regenerative erythrocyte response, and treatments received (azathioprine, azathioprine plus ultralow-dose aspirin, azathioprine plus mixed-molecular-weight heparin [mHEP], or azathioprine plus ultralow-dose aspirin plus mHEP) for comparisons. All dogs received glucocorticoids.

**RESULTS:**

Cocker Spaniels, Miniature Schnauzers, neutered dogs, and female dogs were overrepresented. Alterations in certain

clinicopathologic variables were associated with increased mortality rate. Rates of survival following treatment with azathioprine, azathioprine plus ultralow-dose aspirin, azathioprine plus mHEP, and azathioprine plus ultralow-dose aspirin plus mHEP were 74%, 88%, 23%, and 70%, respectively, at hospital discharge; 57%, 82%, 17%, and 67%, respectively, at 30 days; and 45%, 69%, 17%, and 64%, respectively, at 1 year. In comparison, mean survival rates at discharge and at 30 days and 1 year after evaluation collated from 7 published reviews of canine IMHA were 57%, 58%, and 34%, respectively.

**CONCLUSIONS AND CLINICAL RELEVANCE:**

Treatment with a combination of glucocorticoids, azathioprine, and ultralow-dose aspirin significantly improved short- and long-term survival in dogs with IMHA.

**PMID:**

15934255

[PubMed - indexed for MEDLINE]

14. J Vet Intern Med. 2010 May-Jun;24(3):597-605. Epub 2010 Apr 6.

Treatment of immune-mediated hemolytic anemia with individually adjusted heparin dosing in dogs.

Helmond SE, Polzin DJ, Armstrong PJ, Finke M, Smith SA.

**Source**

Section of Small Animal Internal Medicine, Veterinary Clinical Sciences Department, College of Veterinary Medicine, University of Minnesota, Saint Paul, MN, USA.

**Abstract**

**BACKGROUND:**

A major cause of death in dogs with immune-mediated hemolytic anemia (IMHA) is thromboembolism. Previous studies suggest unfractionated heparin (UH) is not effective in preventing thromboembolism in IMHA; however, subtherapeutic dosing could explain the seeming lack of efficacy.

**HYPOTHESIS:**

Providing therapeutic plasma concentration of UH by individually adjusting doses based on antifactor Xa activity would improve survival in IMHA.

**ANIMALS:**

Fifteen dogs with primary IMHA.

**METHODS:**

Randomized, prospective, controlled clinical trial. Dogs received standardized therapy for IMHA and either constant dose (CD) (150 U/kg SC) (n = 7) or individually adjusted dose (IAD) (n = 8) UH, monitored via an anti-Xa chromogenic assay, adjusted according to a nomogram. UH was administered every 6 hours until day 7, and every 8 hours thereafter. UH dose was adjusted daily in IAD dogs until day 7, weekly until day 28, then tapered over 1 week. Dogs were monitored for 180 days.

**RESULTS:**

At day 180, 7 dogs in the IAD group and 1 in the CD group were alive (P= .01). Median survival time for the IAD group was >180 days, and 68 days for the CD group. Thromboembolic events occurred in 5 dogs in the CD group and 2 dogs in the IAD group. Doses of UH between 150 and 566 U/kg achieved therapeutic anti-Xa activity (0.35-0.7 U/mL).

**CONCLUSIONS AND CLINICAL IMPORTANCE:**

This study suggests that IAD UH therapy using anti-Xa monitoring reduced case fatality rate in dogs with IMHA when compared with dogs receiving fixed low dose UH therapy.

**PMID:**

20384956

[PubMed - indexed for MEDLINE]